

Claims:

1. An active dry sensor module comprising:

a hollow main body having an upper surface with an insertion hole formed through the upper surface;

5 a cap, interlocked with the insertion hole, having a uniform central internal cross section and an upper fringe protruded from the upper surface;

an active electrode inserted into the cap so that the active electrode is slidable relative to the cap, the active electrode having a contactable upper surface and a latching protrusion protruded from a lower part of the active electrode that is capable of being latched onto a lower end of the cap;

10 a resilient member with a first end contacting the lower part of the active electrode, installed in the main body, and electrically connected to the main body; and

an amplification circuit, installed in the main body and coupled to a second end of the resilient member, that is capable of receiving and processing a biomedical signal passed through the spring from the active electrode.

15 2. The active dry sensor module as set forth in claim 1, further comprising a holder fixedly inserted into the insertion wherein the cap is inserted into the holder.

3. The active dry sensor module as set forth in claim 2 further comprising a headset inserted between the cap and the holder so that the main body is attached to and detached from the headset.

20 4. The active dry sensor module as set forth in claim 1, wherein the amplification circuit further comprises:

an instrumentation amplifier for amplifying the biomedical signal and adjusting a common mode rejection ratio and a pass band to generate an output signal;

a band-pass filter for filtering the output signal; and

a notch filter for eliminating a noise component contained in the output signal.

5. The active dry sensor module as set forth in claim 1, wherein the active electrode and the spring are plated with gold or silver.

5 6. The active dry sensor module as set forth in claim 1, wherein the active electrode has a curved upper surface capable of contacting a skin surface.

7. The active dry sensor module as set forth in claim 1, wherein the active electrode has an uneven surface capable of contacting a skin surface.

8. The active dry sensor module of claim 1, wherein the resilient member further
10 comprises a spring.

9. The active dry sensor module of claim 1, wherein the resilient member biases the active electrode against a surface of a user that is using the active dry sensor module.